UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/079,758	05/15/1998	DENNIS R MORRISON	MSC-22939-1-	8692

24957 7590 01/17/2007

NASA JOHNSON SPACE CENTER
MAIL CODE AL
2101 NASA PARKWAY
HOUSTON, TX 77058

EXAMINER	
SOROUSH, LAYLA	
ART UNIT	PAPER NUMBER
1617	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/17/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	09/079,758	MORRISON ET AL.	
	Examiner	Art Unit	
	Layla Soroush	1617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 July 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,6,30-35,37,39,40,73,74,77,85,93-98 and 113* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 6,30-35, 37, 39-40, 73-74, 77, 85, 93-98, 113* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 1, 2005 has been entered. Claims 1, 6,30-35, 37, 39-40, 73-74, 77, 85, 93-98, 113 are pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 6,30-35, 37, 39-40, 73-74, 77, 85, 93-98, 113 are rejected under 35 U.S.C. 103(a) as being unpatentable over McGinty (US Pat No. US 5288502A, previously presented) in view of Gardner (US 4532123 A), Busnel et al. (US 4930522 A), Scher et al. (US 5846554 A) and Roth et al. (Rofo. 1979 Sep;131(3):317-21 Abstract provided).

McGinty teaches multi-phase polymeric microspheres that reads on the limitations of the instant claims. (abstract). McGinty's microspheres comprise internal immiscible liquid phase in the form of microemulsions (see col 4, lines 54-67). McGinty's emulsion contains a water phase and an oil phase, thus it contains at least two internal phases. McGinty teaches an outer membrane polymeric shell (see Table 1, lines 40-51 describing the polymeric wall). McGinty comprise an internal immiscible liquid phase that comprises Tween 80 (2% sorbitan monooloeate/20 moles ethylene oxide) and/or Span 80 (sorbitan monooleate). (see Table 1, col 15; col 14, lines 1-10). McGinty teaches the use of soybean recited as a halogenated oil. The microspheres are preferably of size 50 - 100 microns. McGinty teaches the use of drug, drug precursors or diagnostic agents including procainamide, an anesthetic, interferon, TPA or urokinase and steroid releasing hormones (claims 1-15).

McGinty fails to teach the flexible polymer outer membrane made of polyvinyl alcohols, the specified energy absorbing trigger particle, and the specified contrast medium agent as claimed.

However, Gardner teaches a dual microcapsule which comprises "the membrane of the Mini-Microcapsules can be fabricated from a friable polymer while the outer membrane is fabricated from a flexible polymer. The Mini Microcapsules' walls can be ruptured by application of a compressive force (column 13, lines 50-68). The dual microcapsule of Gardner contains material such as chemotherapeutic drugs (column 14 line 25). The microcapsules customarily have average diameters in the range of about 1 micrometers to 2,000 micrometers (microns).

Busnel et al. teaches "The microcapsules or microspheres form a matrix system, the shell of which is made of a known material such as cellulose acetophthalate, polyvinyl alcohol, pectin, gum arabic, methyl cellulose, gelatin, epoxy resin or the like. The microcapsules are prepared so that the walls or shells will rupture when subjected to rubbing, shearing or wiping and thus release the active product(s) contained therein (column 3, lines 29-40)."

Scher et al. teaches "microcapsules and a process for their preparation, and in particular comprises [1] a microcapsule containing a liquid comprising an ultraviolet light sensitive, biologically active compound and an effective amount of a particulate ultraviolet light protectant selected from titanium dioxide, zinc oxide and mixtures thereof suspended and thoroughly dispersed in the liquid; and [2] a process for preparing microcapsules containing an ultraviolet light sensitive biologically active compound which comprises a liquid and an effective amount of a particulate ultraviolet light protectant selected from titanium dioxide, zinc oxide and mixtures thereof suspended and thoroughly dispersed in the liquid (columm 2 lines 23-52)." Scher et al. teaches aluminum powder is another protecting agent well known in the prior art (column 1 lines 65-67 and column 2 lines 1-2).

Roth et al. teaches a contrast medium emulsion of triglycerides of iodinated poppy seed oil.

It would have been obvious to one of ordinary skill in the art to combine the teachings of McGinty, Gardner, Busnel et al., Scher et al. and Roth et al. The motivation to make such a combination is because the McGinty reference teaches multi-

phase polymeric microspheres containing drugs and the Gardner reference teaches flexible polymers are known to be used in microcapsules while the Busnel et al. reference teaches microcapsules made of a known material such as polyvinyl alcohol are prepared so that the walls or shells will rupture when subjected to rubbing, shearing or wiping and thus release the active product(s) contained therein; and Scher et al. teaches microcapsules containing an ultraviolet light sensitive biologically active compound which comprises a liquid and an effective amount of a particulate ultraviolet light protectant. An example of a protecting agent known in the prior art includes aluminum powder. The skilled artisan would have had reasonable expectation of successfully producing a microcapsule with a flexible outer membrane, properties of UV light protection, and containing the specified contrasting medium.

Cohen et al. (US Pat. No. 5,487,390) is considered as relevant art.

Response to Arguments

Applicant's arguments filed on July 1, 2005 have been considered.

Applicant's arguments over the 35 U.S.C. 112, first paragraph rejection of claims 1,6, 9-35, 37-41, 43, 69, 72-78 is persuasive due to amendments made to claims. Therefore, the rejection is herewith withdrawn.

Applicant's arguments over the 35 U.S.C. 102 (b) rejection of claims 1, 9, 11, 14, 17, 21-23, 30-35, 37-38, 40, 73-75, 85-86 over McGinty et al. (US patent 5,288,502) is persuasive due to amendments made to claims. Therefore, the rejection is herewith withdrawn.

Applicant's arguments over the 35 U.S.C. 103 (a) rejection of claims 1,6, 9-23, 26-35, 37-41, 43, 69, 72-78, 83-87, 93-94 over McGinty et al. (US patent 5,288,502) in view of Grinstaff (US patent 5,665,383) is persuasive due to amendments made to claims. Therefore, the rejection is herewith withdrawn.

In regards to the argument's against the Flexible vs. Hardened polymer outer membrane shell Applicant's attention is drawn to the new rejection discussed above.

The applicant's further argue the amendment "energy absorbing compounds" with "energy absorbing trigger particles" is made to clarify that the energy absorbing trigger particles are not dissolved in the liquid phase in contact with the outer polymer membrane. Given the broadest reasonable interpretation of the claim, the particles can still be dissolved in a liquid phase. Therefore, the prior art still reads on the claimed limitations.

The arguments made against the "magnetic particles" of claims 26-29, 41, 72, 78, and 87 are considered moot due to the cancellation of the recited claims.

The arguments made against the "curie temperature" of claims 29, 41, 69, 78, 83-84 and 87 are considered moot due to the cancellation of the recited claims.

The arguments made against the "ceramic coating" of claim 27 are considered moot due to the cancellation of the recited claims.

The argument made against the "specific curie temperature range" of claim 29 is considered moot due to the cancellation of the recited claims.

The arguments made against the "coating added as a limitation" of claims 41, 69, 72, 83-84 and 87 are considered moot due to the cancellation of the recited claims.

Conclusion

No claims allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Layla Soroush whose telephone number is (571)272-5008. The examiner can normally be reached on Monday through Friday from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sreenivasan Padmanabhan, can be reached on (571) 272-0629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SREENI PADMANABHAN
SUPERVISORY PATENT EXAMINER